

What is claimed is:

1. A thin-film bulk acoustic oscillator comprising:
a piezoelectric thin film that exhibits a piezoelectric property;
a first electrode and a second electrode that are disposed on both
5 surfaces of the piezoelectric thin film and apply an excitation voltage to the
piezoelectric thin film; and
a base; wherein:
the first electrode, the piezoelectric thin film and the second electrode
are stacked in this order on the base; and
10 a surface of the piezoelectric thin film close to the second electrode has a
root mean square roughness of 2 nanometers or smaller.
2. The thin-film bulk acoustic oscillator according to claim 1, wherein
the piezoelectric thin film is made of zinc oxide or aluminum nitride.
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3. A method of manufacturing a thin-film bulk acoustic oscillator
comprising: a piezoelectric thin film that exhibits a piezoelectric property; a
first electrode and a second electrode that are disposed on both surfaces of the
piezoelectric thin film and apply an excitation voltage to the piezoelectric thin
20 film; and a base; wherein the first electrode, the piezoelectric thin film and
the second electrode are stacked in this order on the base, the method
comprising the steps of:
forming the first electrode on the base;
forming the piezoelectric thin film on the first electrode;
25 polishing a top surface of the piezoelectric thin film; and
forming the second electrode on the top surface of the piezoelectric thin

film polished.

4. The method according to claim 3, wherein the top surface of the piezoelectric thin film is polished to have a root mean square roughness of 2
5 nanometers or smaller in the step of polishing.

5. The method according to claim 3, wherein the top surface of the piezoelectric thin film is polished by chemical mechanical polishing in the step of polishing.
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6. The method according to claim 3, wherein the piezoelectric thin film is made of zinc oxide or aluminum nitride.